

PATENT SPECIFICATION

1,063,154



1,063,154

Inventors: WILLIAM GORDON HALLAM and ALAN COCKITT.

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Application Date: January 21, 1965.

No. 2760/65

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Index at Acceptance:—F2 U21C.

Int. Cl.:—F 16 c.

SEE ERRATA SLIP ATTACHED

COMPLETE SPECIFICATION

NO DRAWINGS

Improvements in Roller Coverings

PATENTS ACT, 1949

SPECIFICATION NO. 1,063,154

In accordance with the Decision of the Superintending Examiner, acting for the Comptroller-General, dated the 17th day of April 1968 this Specification has been amended under Section 14 in the following manner:—

Page 1, line 86, after "P.V.C." insert "(premix)"

Page 1, line 87, delete "premix"

THE PATENT OFFICE,
26th June 1968

D 104391/5

ERRATUM

SPECIFICATION NO. 1,063,154

Page 2, line 29, after "comprising" insert "mixing"

THE PATENT OFFICE,
12th September 1967

D 91925/13

very desirable characteristics in service.

According to the invention a method for the production of a roller covering comprises forming a premix of a polyvinyl chloride polymer allowing the compound to gel and cool, mixing the compound with a blend of nitrile rubber, milling the resultant composition and finally applying the composition to a roller and vulcanising the composition thereon.

In carrying out the invention a premix is prepared comprising:—

1. A p.v.c. polymer such as that sold under

[Price 4s. 6d.]

| | | |
|----------------------|-------|-----------------|
| Nitrile rubber blend | 100.2 | 75 |
| Butadiene- | | |
| acrylonitrile | 80 | parts by weight |
| zinc oxide | 4 | parts by weight |
| stearic acid | 1 | part by weight |
| accelerator (MBTS) | 1.25 | parts by weight |
| anti-oxidant | | |
| (NonoxExn) | 1 | part by weight |
| clay | 10 | parts by weight |
| gelled plasticised | | |
| p.v.c. | 100.2 | parts by weight |
| sulphur (premix) | 2 | parts by weight |

SPECIFICATION AMENDED - SEE ATTACHED SLIP



PATENT SPECIFICATION

1,063,154

Inventors: WILLIAM GORDON HALLAM and ALAN COCKITT.

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SEE ERRATA SLIP ATTACHED

COMPLETE SPECIFICATION

NO DRAWINGS

Improvements in Roller Coverings

We, GREENGATE & IRWELL RUBBER COMPANY LIMITED, a British Company of Irwell Words, Ordsall Lane, Salford, County of Lancaster, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

This invention relates to improvements in roller coverings.

It has been proposed to use soft rubber compounds for roller coverings for the printing, textile and other trades and in the past apart from such rubber compounds other compositions based on Gelatine and highly plasticised polyvinyl chloride (p.v.c.) casting compositions have been used.

The production of soft rubber compounds presents certain difficulties as substantial quantities of oil or softeners have to be incorporated. Furthermore, such compositions have poor tensile strength in the unvulcanised state, and it is difficult to produce satisfactory products having a hardness less than 30 British Hardness Degrees.

The object of the present invention is the production of roller compounds having a hardness as low as 20 BSH° which can be processed without the difficulties referred to above and to produce a product which has very desirable characteristics in service.

According to the invention a method for the production of a roller covering comprises forming a premix of a polyvinyl chloride polymer allowing the compound to gel and cool, mixing the compound with a blend of nitrile rubber, milling the resultant composition and finally applying the composition to a roller and vulcanising the composition thereon.

In carrying out the invention a premix is prepared comprising:—

1. A p.v.c. polymer such as that sold under

the trade name Geon 113.

2. A stabiliser such as that sold under the trade name Ferroclere 190.
3. A plasticiser such as that sold under the trade name D.O.P.

The premix is mixed for a period of 15 to 20 minutes and poured into trays to a depth of approximately one inch and allowed to gel at a temperature in the neighbourhood of 130°C in air for a period of 30 minutes and allowed to cool.

A blend of nitrile rubber is prepared comprising butadiene acrylonitrile, zinc oxide, stearic acid, an accelerator such as that known as MBTS and an antioxidant such as that known as Nonex EXN. The compound is mixed for say four minutes when clay and the premix are added and mixed into the compound for a further say three minutes. After a further six minutes the batch is removed and milled with the addition of sulphur, cut and allowed to blend for ten minutes.

The invention will be described with reference to the following example:—

Premix

| | | | |
|---------------------------|-------|-----------------|----|
| p.v.c. polymer (Geon 113) | 20 | parts by weight | 70 |
| stabiliser (Ferroclere) | 0.2 | parts by weight | |
| plasticiser (D.O.P.) | 80 | parts by weight | |
| | 100.2 | | 75 |

Nitrile rubber blend

| | | | |
|---------------------------|-------|-----------------|----|
| Butadiene-acrylonitrile | 80 | parts by weight | |
| zinc oxide | 4 | parts by weight | |
| stearic acid | 1 | part by weight | 80 |
| accelerator (MBTS) | 1.25 | parts by weight | |
| anti-oxidant (NonoxExn) | 1 | part by weight | |
| clay | 10 | parts by weight | |
| gelled plasticised p.v.c. | 100.2 | parts by weight | 85 |
| sulphur (premix) | 2 | parts by weight | |

[Price 4s. 6d.]

Roller coverings from this composition are applied by the normal manufacturing techniques of calendering the rubber sheet to the thickness required and this sheet is then built cylindrically and vulcanised under the normal conditions well known in the trade.

The cover is finally ground to produce a smooth finish necessary for printing and other fine work. It has been found that rollers from this composition give excellent results in service, and have good resistance to the fast drying inks which are now employed in the printing trade and may also be employed in the textile industry and other trades as the composition is also resistant to the action of a wide range of chemicals.

WHAT WE CLAIM IS:—

1. A method for the production of a roller covering comprising forming a premix of a polyvinyl chloride polymer allowing the compound to gel and cool, mixing the compound with a blend of nitrile rubber, milling the resultant composition and finally applying the composition to a roller and vulcanising the composition thereon.

2. A method for the production of a roller covering as in Claim 1, comprising the premix for 15 to 20 minutes into a compound,

pouring the compound into trays and allowing the compound to gel at a temperature approximately 130°C in air for a period of 30 minutes, allowing the compound to cool and then mixing the compound with the blend of nitrile rubber.

3. A method for the production of a roller covering as in Claim 1 or 2 consisting of mixing the premix compound with a blend of nitrile rubber comprising butadiene acrylonitrile, zinc oxide, stearic acid and an accelerator to form a nitrile rubber compound, mixing the nitrile rubber compound for four minutes and adding clay and the aforesaid premix compound, mixing for a further three minutes and removing the mixed compounds, adding sulphur and milling the mixed compounds.

4. A roller covering produced by the method claimed in any of Claims 1 to 3.

5. A method for the production of a roller covering substantially as described with reference to the foregoing example.

6. A roller covering when produced substantially as described with reference to the foregoing example.

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